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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,857	04/12/2004	Norihisa Naganuma	1448.1056	1803
21171	7590	06/04/2008		
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER CHANG, AUDREY Y	
			ART UNIT 2872	PAPER NUMBER
			MAIL DATE 06/04/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/821,857

Applicant(s)

NAGANUMA ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 1, 2008 has been entered.
2. This Office Action is also in response to applicant's amendment filed on April 1, 2008, which has been entered into the file.
3. By this amendment, the applicant has amended claims 16, 11-14, and 17-20 and has newly added claims 21-24.
4. Claims 1-24 remain pending in this application.

Response to Amendment

5. The amendments filed on **June 19, 2007**, **November 13, 2007** and April 1, 2008 are objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "*filter arranged in a path of wavelength multiplexed beam including a plurality of different wavelengths multiplexed together and which are not separated into respective wavelengths*". The specification fails to give **POSITIVE** and **EXPLICIT** support for such. The figures and the specification **fail** to give positive support for having the filter arranged in a wavelength multiplexed beam such that the beam is **not separated** into respective wavelengths. **The specification fails to give positive support that the multiplexed beam is not separated into respective wavelengths. The application is respectfully noted that a wavelength multiplexed beam does not inherently mean that the beam is not separated into respective**

wavelengths. Rather by definition, a wavelength multiplexed beam is combine signal divided into subchannels of different wavelength each carrying a signal at the same time in parallel. This means by simply disclosing the beam being wavelength multiplex beam does not mean the beam is not separated into different wavelength. On the contrary, the wavelength multiplexed beam is a combination of multiple wavelength channels, this means these multiple wavelength channels are separated.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. **Claims 1-24 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The reasons for rejection based on added new matters are set forth in the "response to amendment" section above.

Claim Objections

8. Claim 6 is objected to because of the following informalities:

- (1). The phrase "the collimated beam" recited in claim 6 is confusing and indefinite since it lacks proper antecedent basis from its based claim.
- (2). Claim 6 is confusing since it lacks proper structural relationship between the first diffraction unit with the first and second filter portions and the second diffraction unit with the third and fourth filter

portions. It is not clear if they are arranged along the beam path or they are arranged in the direction perpendicular to the beam path.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-9 and 11-20 and newly added claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Fukushima (PN. 5,805,759).

Fukushima teaches an *optical device* that is comprised of an *optical filter* (6, Figures 4, and 7(C)) that is placed in the beam path of a *collimated light beam* (SP). Fukushima teaches that the optical filter comprises a first and a second portions (6D) that in between the two portions there is a *slit* (42) such that the center wavelength of the collimated light beam that passes through the filter is selected and the transmittance of the collimated light beam verses the wavelength characteristics changes as a function of the wavelength, (please see Figure 7(D)). Fukushima further teaches that the filter may be moved by a *driver* (32) in a direction that is *perpendicular* to the direction of the collimated light beam, (please see Figures 6-7, column 6, lines 54-55) such that different center of wavelength of the pass-band of the collimated light can be selected as the filter is moved in the direction perpendicular to the collimated light beam, (please see column 9, lines 29-44).

This reference has met all the limitations of the claims with the exception that it does not identify explicitly that the slit is a diffraction unit. However it is known in the art that a single slit having slit

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width that is *much greater* than the wavelength of the incident light beam will form *single slit diffraction unit* and a maximum diffraction peak or transmittance peak for the selected and diffracted light having the selected wavelength will be formed by this single slit diffraction. Since the Fukushima reference teaches that the wavelength interest is in the range of 1.5 microns, and the slits are of the macroscopic size this means it is implicitly true that the slit (42) does form a single slit diffraction unit and the transmittance of the light beam as shown in Figure 7(D) is a maximum diffraction peak. It is also obvious to one skilled in the art, if the slit is not of the size, to make the slit to have the size capable of making single slit diffraction unit for the benefit of making the transmittance filter via the slit of **Fukushima** utilizing diffraction theory to maximize the transmittance peak for the pass-band of the collimated light beam.

Claims 1, and 11-13 have been amended to include the phrase that “the filter is arranged in the path of a wavelength multiplexed collimated beam including a plurality of different wavelengths multiplexed together and which are not separated into separated wavelengths” and the phrase “the diffraction loss of the wavelength multiplexed light incident on the diffraction unit varies as the diffraction unit is moved”. These features are rejected under 35 USC 112, first paragraph, for lacking explicitly support from the specification, for the reasons stated above. In particular, the specification, the figures and claims totally fail to disclose explicitly that how the wavelength divisional multiplexer being **part** of the variable filter. Furthermore, the recitation is really referred to a **manner of intended use** of the filter. The applicant being one skilled in the art must understand that the intended application of the filter really does not affect the *structure* of the variable filter. At least the claims completely fail to disclose any **physical** structure of the filter that is determined by the light beam. The feature concerning the “wavelength multiplexed collimated light beam including a plurality of different wavelengths multiplexed together and which are not separated into respective wavelengths” *is not part* of the filter. It can only be held as **manner** of intended use. It has been held that a **recitation** with respect to the **manner** in which a claimed **apparatus** (in this case the variable filter) is intended to be employed (in this

case, intended wavelength divisional multiplexer) **does not differentiate** the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Madham, 2 USPQ2d 1647 (1987).

Furthermore, Fukushima teaches that the light beam input from the optical fiber (16, Figure 4) must be a wavelength multiplexed light beam, the same way as the instant application, since the light beam comprised a plurality of wavelengths multiplexed together and it is collimated by the collimating lens (28) and the filter (6) is **placed in the light path of this light beam**. The wavelength multiplexed collimated light beam right after the lens (28) is not separated into respective wavelengths. Also by the definition of wavelength multiplexed beam, the beam is a combine signal of multiple subchannels of different wavelength each carrying a signal at the same time in parallel. This means the even after the gratings (20 and 22, Figure 4) of Fukushima, the signal is **still a wavelength multiplexed signal** since it is a combination of subchannels of different wavelength each carrying a signal at the same time in parallel.

It is implicitly true that the diffraction loss of the wavelength multiplex light varies as the movement of the diffraction unit or the slit.

With regard to claim 2, Fukushima teaches that the first and second filter portions are formed by plates (6D), although this reference does not teach explicitly that the portions are made by film, however since the same function, namely making these portions filter portions, is the same to make them by film or plates would have been obvious variations to one skilled in the art for the benefit of making the filter fits the specific design requirement.

With regard to claims 3-5 and 15-16, Fukushima teaches that a plurality of the optical filters (6, Figure 9) may be used wherein each of the optical filters is individually driven by the driver to move in the direction perpendicular to the direction of the collimated light beam. Fukushima teaches that each of the plurality of optical attenuation filters has specific slit patterns (please see Figures 5-7) and they are driven to provide specific transmittance characteristics, (please see Figures 10). The slits for different

filters are implicitly arranged at certain angle with respect to each other since even if they are parallel to each other they are at angle zero with respect to each other.

With regard to claim 6, Fukushima in different embodiments teaches that a plurality of attenuate plates (6(#1) to 6(#4), Figure 9 could be used in the light path of the wavelength multiplex light beam. Although it does not teach explicitly that the attenuate plates have the same structure as Figure 7(C) with slit defined between two filter portions, however such modification is considered to be obvious to one skilled in the art for the benefit of obtaining desired wavelength characteristics by the optical filter.

With regard to claim 7, this reference does not teach explicitly that the driver is the types of driver claimed however these claimed drivers are all well known standard drivers in the art to use one of them would have been obvious modification to one skilled in the art for the benefit of effectively moving the optical filter as desired.

With regard to claim 8, it is implicitly true the different arrangements of the edges and slits for the attenuation optical filters result different wavelength characteristics.

With regard to claim 9, Fukushima teaches that the filter portion essentially has zero transmittance but it does not teach explicitly if they are reflection or not. However such modification does not change the function of the slit, which essentially provides transmitted diffraction beam. Furthermore, it is implicitly true that zero transmission can include non-zero reflection of the incident light and the reflection of the collimated light will be in the direction parallel to the collimation direction, by the principle of reflection.

With regard to claim 14, Fukushima teaches that the light attenuation filter region lines (ETL) with certain pitch as relative to the beam spot size (SP) is set to be less than one quarter of the beam spot size, (please see Figures 5-6). It would then have been obvious to make the grating structure of the attenuation optical filter with edges to have the pitch to be less than a quarter of the beam size for the benefit of enabling the attenuation filter to provide desired wavelength transmittance pattern.

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With regard to newly added claims 17-20, Fukushima et al in different embodiment teaches that the first and second filter portion can have equal non-zero transmission with the diffraction portion defined by the edges of the first and second filter portions, (please see Figures 7(A) and 7(B)).

With regard to newly added claims 21-24, Fukushima et al teaches that the wavelength multiplexed light is collimated by the lens (28, please see column 6, lines 43-45).

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima as applied to claim 1 above, and further in view of the Japanese Patent (JP 10-253327 A) by Matsuno et al.

The variable filter taught by Fukushima as described in claim 1 above has met all the limitations of the claim.

With regard to claim 10, this reference does not teach explicitly that the filter is made by glass material and with film formed on the glass material to form the filter portion. Matsuno et al in the same field of endeavor teaches that an attenuation filter may be formed by thin film pin hole (14) on a glass substrate (13, Figures 2 and 3). It would then have been obvious to apply the teachings of Matsuno et al to modify the variable filter of Fukushima for the benefit of actually making the variable filter.

Double Patenting

12. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

13. Applicant is advised that should claim 1 be found allowable, claims 11 and 12 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are

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duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Response to Arguments

14. Applicant's arguments filed on April 1, 2008 have been fully considered but they are not persuasive. The newly amended and newly added claims have been fully considered and rejected for the reasons stated above.

15. In response to applicant's arguments which state that the transmission slit (42) cited Fukushima reference "does not operate the same manner as the diffraction unit" recited in the claims, since "the spectral beam is beam in which wavelength components are separated spatially in the direction of thickness of the spectral beam" (please see remark), the examiner respectfully disagrees for the reasons stated below. Firstly, it is not clear what is considered to be the "direction of the thickness of the beam". Secondly, the specification FAILS to give explicit support for the multiplexed beam is not separated into different wavelength components. Thirdly, even if the light beam of Fukushima is spatially separated into subchannels of different wavelength they are still parallel to each and are together identified as wavelength multiplexed light. Fourthly, the conditions of the applied light beam DOES NOT contribute any structural difference of the variable filter itself or differentiate the variable filter structurally between the cited patent and the instant application. Just as the applicant has correctly identified, the difference is really a difference of "manner of operation" of the variable filter, i.e. a difference in **intended use**. It has been held that a recitation with respect to the manner in which a claimed apparatus is **intended to be employed** does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Madham, 2 USPQ2d 1647 (1987). Applicant is respectfully noted that the claims are drawn to the variable filter itself. The **condition** of the light beam being incident on the filter really has nothing to do with the structural of the filter. The applicant is encouraged to

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amend the claims to recite the **structural** of the variable filter itself instead how the filter is being utilized.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (9:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

***Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872***

A. Chang, Ph.D.
/Audrey Y. Chang/
Primary Examiner, Art Unit 2872